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Health

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EDITORIAL

MEDICAL INSPECTION OF SCHOOLS IN THE MADRAS PRESIDENCY.

The scheme of Medical Inspection of Schools which was inaugurated in this Presidency, in 1924, by Sir A. P. Patro, the then Minister of Education, had been abandoned within a short space of 8 years, due ostensibly to financial crisis but, in reality, to its failure, partly for lack of proper direction and management on right lines and partly on account of its inherent imperfections. A Conference of Medical Inspectors of Schools was held on the 5th and 6th August '32 under the auspices of the Health Propaganda Board and its proceedings, have since been published in book form. The foreword is written by Mr. W. E. Smith, the Director of Public Instruction, who attributes the failure of the scheme to the parent. " The failure of the parent ", he says, to respond in full measure to the requirements of the scheme, has been, as is evidenced from the deliberations of the Conference, one of its saddest features in the past. It is clear that much propaganda is needed to convince the parent that a healthy child is an asset to society ". First of all, let us examine this statement and see how far the parent is responsible for the failure. It is an admitted fact that 'mal-nutrition' among school children is a serious factor to be counted and is responsible for most of the ills to which they are subject. The parents generally are poor and their children are ill-fed and under-fed. There is no good, therefore, telling a parent 'give more milk to your children and more of vitaminous foods' when he is himself in a state of utter helplessness and semi-starvation. The economic problem must first be solved before attempting to rectify the defects in the health of the school children,

Milk, the chief article of food, cannot be had now for love or money, in village parts. The live-stock is depleted both in quality and quantity. Grazing grounds have in most places been converted into patta lands and forests are reserved, where no cattle could enter. Milch cattle too are sold away for slaughter. Even the little yield of milk is taken to the nearest town and sold to coffee-clubs. What can the poor parent do, to treat cases of mal-nutrition among his children? In all civilized countries of the world, substantial mid-day meals are provided for school children at the expense of the State. Unless the State comes to the rescue of the parent by providing mid-day meals for school children free, the parent will be powerless to act and the problem of mal-nutrition among school-children will remain for ever an unsolved problem.

Secondly, there is the question of follow-up of cases. The medical examination was done in the past in a most haphazard and hasty manner so much so, proper diagnosis was not made of the defects. And, the defects so far noticed, were no doubt communicated to the parents, the teacher or the Head Master of the school acting the role of mere post office. The teacher never took care to note the defects himself and ask the children to get them rectified. The parents on account of their poverty or prejudice let the defects go untreated. There are no children's clinics attached to schools. The hospitals and dispensaries established by Government cannot successfully treat eye, ear, nose and throat diseases which these youngsters are generally afflicted with. Unless the defects pointed out are rectified then and there in Special Clinics and these cases are followed up and periodically inspected in their homes and in the schools, by a special staff maintained for the purpose, guided and controlled by the School Medical Officer, no good would result. Without the State making proper provision for treatment of cases and for following them up, the scheme is bound to fail. The parent, therefore, cannot be held to blame for inherent defects in the scheme itself.

Lastly, there must be adequate provision for health education of the children in schools. This is woefully lacking. Hygiene must be made a compulsory subject in all Elementary Schools and the school teacher himself who must have had sufficient knowledge and training in health work, should undertake the task of imparting health education to children. In High Schools and Colleges,physiology should be added to the course of instruction, and the school medical officer who must be a full timed man, should give the necessary instruction. The Health Propaganda Board or any other Health organization should undertake the task of disseminating health knowledge to the masses.

As observed by Lt. Col. J. W. D, Webb, Director of Public Health, Madras, in his Presidential address, "any system of benefit to school children which begins and unfortunately ends with medical inspection and inspection only, is doomed to fail and to degenerate into a collection of unused statistical information". This is just what had happened in the Madras Presidency. He added :—

" Through lack of understanding, I believe the scheme has fallen into undeserved disrepute. One must admit that if such work is unsuccessfully performed it is not only useless but is an unprofitable drain on the country's finances. Recently as a measure of retrenchment the Govt. decided to close down medical inspection of school children until finances improved. I personally regret this step very much because I am one of those who would have said 'yes', if I had been asked the answer to the question—"Do you believe in the good health of school children in the Madras Presidency, as an important nation building work?"

Here is a hint for the Govt. of Madras from its own health adviser to resuscitate and re-commence medical inspection work on modern and up-to-date lines and to carry it through unceasingly and we hope the Govt. will act up to his advice, now that its financial position has considerably improved.

EXERCISING WITH HEART DISEASE

BY

EDWARD PODOLSKY, M.D.

Brooklyn, New York.

In the minds of most people exercises of any kind are taboo in heart disease. They are under the impression that when a person suffers from heart disease he is doomed to a life of inactivity and invalidism. Yet this is far from the truth. Many victims of cardiac derangement suffer more acutely mentally than physically. They suffer more from fear than from the disease itself. And exercising in heart disease is not the great crime that many think it is. As a matter of fact, it is of distinct benefit in certain cases of heart ailment.

The heart is a muscle, and like any other muscle in the body it may be strengthened by the proper exercises. Only in cases of heart failure is absolute rest indicated. After the heart has regained a proportion of its power, a period of cautious and progressive heart training should follow. This is somewhat comparable to infantile paralysis. During the active stage of the disease the limb muscles are paralyzed and useless. After the acute stage has passed the muscles must be re-educated by exercises in order to regain their usefulness. The same thing obtains in the case of the heart.

The very first stage in recovering from heart failure in the matter of exercising consists of raising from a sitting position the arms and legs to a horizontal position a certain number of times. As the heart grows stronger the movements become a little bit more active. These consist of raising the legs towards the body, flexion of the thighs on the abdomen, raising the body toward the legs, with interspersed breathing exercises in the horizontal position.

After the heart has recovered from its seige of acute illness and failure a more vigorous group of exercises may be indulged in. At first a mild form

of exercise is preferable. Walking is perhaps the best example of the mild type of exercise. This must be done at first only on level ground, so as not to tax the heart too much. The exerciser must not talk while walking, nor walk against a strong wind, as both are very fatiguing. A short distance should be covered at a steady gait. Then a rest for two or three minutes is advisable. Then repeat the walk and rest. Other forms of

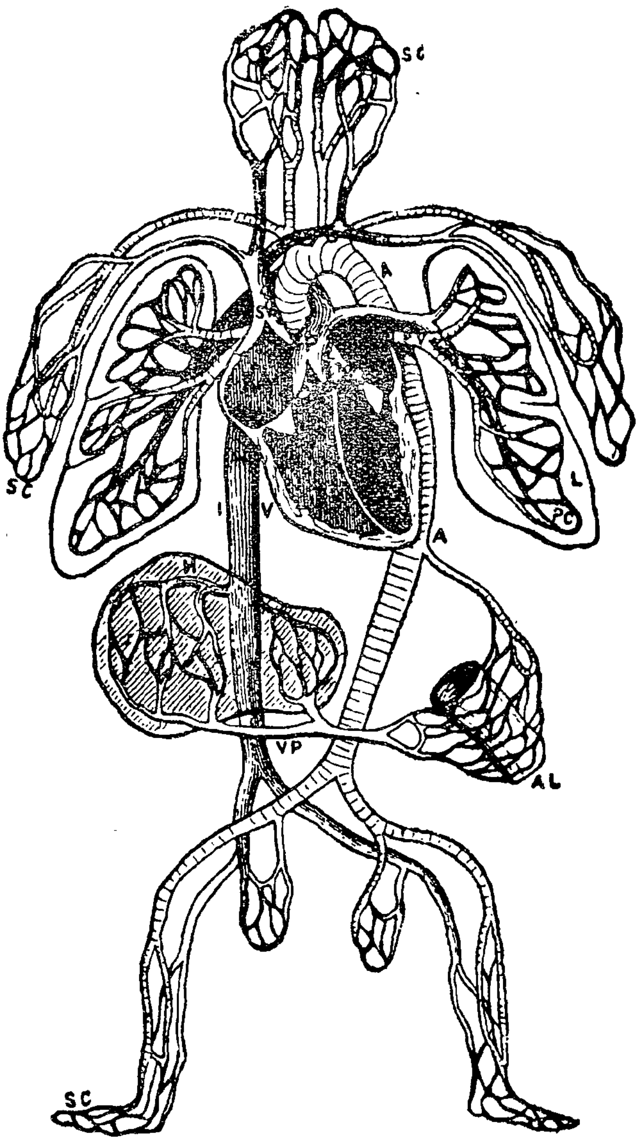
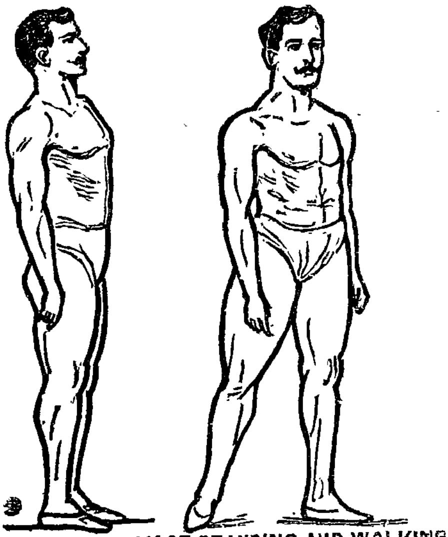


Diagram of Blood Circulation

R. A, right auricle ; RV, right ventricle ; P, pulmonary artery ; PC, capillaries in lung ; PV, pulmonary veins ; LA, left auricle ; LV, left ventricle ; A, aorta ; SC, capillaries of general system ; AL, capillaries in bowels ; VP, portal vein ; H, circulation in liver ; IV, SV, inferior and superior vena cava. (Turner's Anatomy).

mild exercise suitable for sufferers from heart disease are croquet playing, setting up exercises in which the arms and legs are not moved, and short rounds of golf. The patient should not over do any of these, and as soon as he feels himself growing tired he should rest at once. After a sufficient period of rest the exercise may be



THE RIGHT WAY OF STANDING AND WALKING

resumed. It is never wise to over-exercise even with a normal heart. Dont forget that the heart is a muscle which may be strained just as any other muscle in the body is by over-doing it.

As the patient's heart reserve power increases, and it will increase after a course of these mild exercises, he graduates into the more energetic type of exercise. Doctors have found that this type of exercise produces an increase of 20 or more millimetres of mercury when measured with a blood pressure apparatus. This means that the heart is considerably strengthened. It is similar to the increased grip power of the hand muscles after they have been properly exercised.

Perhaps the most popular of the energetic exercises for heart sufferers is with dumb-bells. This consists of swinging a dumb-bell (varying between one and fifteen pounds in weight. You can suit yourself) between the feet in an arc above the head and repeating without a pause. Another form of dumb-bell exercising consists of flexing the forearms alternately, with a bell in each hand. This may be done either in the standing or sitting position. Still another type of dum-bell exercise consists of pushing two bells alternately above the head. It is best that these exercises be divided up into groups, which may vary from five to twenty movements, depending of course on the strength of the exerciser, and also remembering not to overdo it. After each period rest is required, and this should be sufficiently long to completely refresh. Then repeat the exercise.

Other forms of energetic exercises for heart sufferers consist of all callisthenics in which the body trunk is moved widely. Stair climbing is a convenient form, requiring no special apparatus. Skipping rope is still another good form of energetic exercise. Still another is hopping without a rope, and another is running in place. Don't forget that all exercises must be divided up into small periods of exercises and sufficient periods of rest to recover entirely from the fatigue of the exercise period.

Just exactly what is happening when the heart sufferer exercises? There is no doubt that exercises bring about certain changes in the heart. During work the heart increases its output per minute, either by a larger

output or by an increased rate or both. The blood pressure is raised because the heart force is increased by the exercise. This raise in blood pressure is very beneficial for the heart sufferer. It increases the blood supply to the heart. This also increases the oxygen supply to the heart muscle which further enables it to carry on its work.

The flooding of the heart muscle with blood, which accompanies every kind of exercise, has a marked effect on the nutrition of the heart, provided that the heart is not overfatigued by the exercise. That is why it is wise thing to remember not to over-exercise. Over-exercising is just as bad as over-eating. It is beneficial only when done in moderation.

Exercising improves, as you see, the nutrition of the heart muscle by sending to it greater amounts of blood and oxygen. This improved nutrition of the heart muscle fibres also has the effect of strengthening their contracting power. This is what all heart remedies aim to achieve: increase in the contracting power of the heart muscle fibres. Once this is accomplished the heart has assumed its proper place in the body economy: pumping the blood efficiently to all its tissues and organs.

The sufferer from heart weakness can accomplish much in the way of strengthening the heart by properly graded exercises, even more than with medicines. It all boils down to the fact that in order to increase the strength and efficiency of a muscle it is necessary to exercise it. This is exactly the case with the heart.

HAY FEVER

BY

DR. CHARLES HOOPER

Coeur D'Alene, Idaho, U.S.A.

I HAVE a three months' steady job, blowing my nose. Yes, Hay Fever —a purgatorial affliction that makes a man feel like crawling into a dark hole for the summer, and pulling the hole in after him.

Itching and running nose; itching eyes and stomach; chills and fever; headache; difficulty of breathing; cramps, pains, and stitches; vertigo; and a deathlike weakness, lassitude, and enervation of body—are some, not all, of the symptoms of hay fever.

The doctors have not yet fathomed this obscure and mysterious complaint, one of the few complaints that men actually take pride in having. An association of hay fever victims meets annually to brag about symptoms.

The symptoms of hay fever are the symptoms of all diseases rolled into one; *yet hay fever itself is not a disease;* and I do not believe in using remedies for it except, perhaps, change of environment. A man may have hay fever for fifty years, and remain in good health.

Hay fever is probably connected with sex, hence men's pride in having it.

EARLY MARRIAGE AND CONSUMPTION *

BY

RAO BAHADUR DR. M. KESAVA PAI, O.B.E. M.D.,

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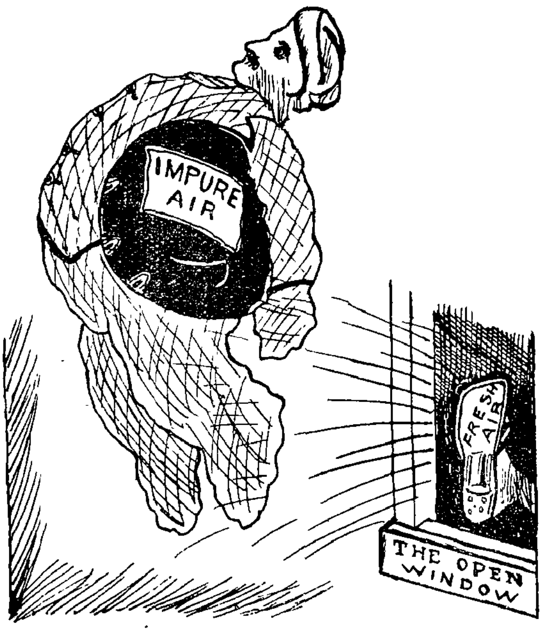
THE two terms "Early marriage" and "Consumption" may appear a rather queer combination but the unfortunate fact remains that one has a direct bearing on the other. The cause of the high mortality from consumption in this country when properly analysed can be expressed in one word-malnutrition, the result of poverty and ignorance. The history of the different countries of the world in the matter of tuberculosis mortality definitely proves that the richer and more advanced countries have the smallest mortality from tuberculosis and the poorer and more backward the highest death rate from the disease. Thus England, America and Australia which are flourishing countries either due to their trade and industries or due to the development of their natural resources have the lowest mortality from consumption, whilst India, China and other less advanced countries with teeming populations and resources quite inadequate for these populations have a high death rate from tuberculosis.

What then is the remedy for this unsatisfactory state of affairs in India? The improvement of the natural resources, the food supply and the income of the individual would no doubt lessen the incidence of tuberculosis. The improvement of agriculture and of co-operative credit, the development of industries and of trade would certainly be of great help in this direction, but there is one chief item in the anti tuberculosis programme which is perhaps as important as any other single measure and that is social reform. Early marriage is undoubtedly the main factor in the social conditions of the country that is responsible for the high death rate from consumption. It is not difficult to understand why this should be so. The first effect of early marriage is early motherhood with its consequent drain on the system which falls an easy prey to tuberculosis. The number of victims to consumption amongst young mothers in India is very great and a visit to a tuberculosis hospital or Sanatorium in India is enough to convince even the most superficial observer of the glaring fact that the vast majority of female patients are mothers between the 15th and 25th year of life. Many of them give a history of frequent pregnancies, abortions or child births and amongst a good many the attack of the disease in a virulent or galloping form has followed the birth of a child. The child bearing period is the most critical and trying time in a woman's life wherein the resistance against tuberculosis varies inversely with the number of child births and the social and economic depression in which the mother lives. Every addition to the family is an extra strain not only on the strength and working capacity of the mother but on

* Radio Lecture No. 7, specially sent to 'Health' for publication.

the resources of the family as a whole. When one looks at the small income of the vast majority of families in this country, with more mouths than the family income can ever fill, one often wonders why tuberculosis does not carry away a much larger number of victims than it actually does. Early and frequent motherhood is a curse in more ways than one. Besides the physical and nervous drain on the



mother it means more of domestic responsibility, less of individual attention to each child, less air space, less nourishment, greater vulnerability during times of epidemics, wider spread of tuberculosis infection under the same roof once a member of it gets the active disease, and increasing demoralization in the house-hold with every addition to an already unwieldy family, perhaps a family already far beyond the resources of the parents to maintain. This is what is actually the position in the majority of households in India today and until and unless social legislation or voluntary social reform comes to the rescue this state of affairs must continue to grow worse.

It is wise parenthood that is badly needed in India today to save the country from the threatening over-population. Many countries in the west have already worked their salvation by social measures aimed at the restriction of population within judicious limits. A high birth rate means a high death rate and a degeneration of national physique. Delayed marriage and control of the birthrate by differant means have saved many modern countries from over-population and poverty and thereby lessened the mortality from tuberculosis. One great remedy therefore for the high tuberculosis mortality in this country is to try aud solve the problems of population and food supply by all possible means and prevention of early marriage which the Sarda Act has now legally enforced, is one of the wisest and most fruitful measures which has this aim in view. One of the immediate result of this social legislation will be the lessening of poverty and economic distress and the control of tuberculosis mortality.

BRAIN AND BRAWN

BY

DHARAN DAS, S. BHAGTANI

Mithadhar, Karachi.

MIND over matter is the slogan of most of us. Our entities have been divided into physical and mental, the latter claiming the whole of our attention. That this division is arbitrary is seldom realised by parents, educators etc.

Mind is dependent on the brain, without which it cannot exist. Upon the healthy functioning of the highly specialised cells of the brain cortex or gray matter as it is sometimes called, all mental activity depends; and should these cells be injured as by a blow on the head or should they be poisoned as by alcohol or disease toxins, then mental disturbances will result. Proper nourishment of these cells will make them healthy and vigorous. If the brain arteries are thickened and hardened, the brain cells will be inadequately nourished and degenerate, resulting in an impairment of all the mental functions, such as occurs in morbid old age.

Again although the brain is essentially the organ of mind, it is in constant communication with every part of the body, and the impression conveyed to it via the nerves influences it. Thus mind comprehends the whole bodily life, being in sympathetic contact with it. Upon the healthy or unhealthy working of the lungs, heart, digestive organs, skin and ductless glands, the back-ground of our mental feelings plainly depends. The sanguine optimism of the consumptive, anxiety and fear associated with heart affections, irritability of temper of a dyspeptic, confusion or delirium during a toxic fever are familiar to all. A feeble or failing thyroid gland produces degenerative mental changes; bluntness in concentrating power and absence of initiative, and so on.

It is clear that a sound body must be a precedent to a sane and receptive mind. The first principle of education, that you cannot develop in a weak stunted unhealthy body a stable and sound mind is forgotten. "It seems futile to reform education apart from the physical condition of the child. Physical defect was one of the chief causes of backwardness in schools, there was an accumulation of defective children of the higher ages in the lower standards," writes Sir George Newman of the British Health Ministry. Dr. Daniel Russel Hodgson, a member of the Faculty of New York University, President, Hannemenn Medical College and Hospital, Chicago, after 6 years experimentation on 1100 boys, says that a large *percentage of* the so-called backward fell behind in their studies as a result of lowered health, whereas when the same boys were brought back to normal health, they promptly and naturally stepped right up to their expected level of mental work in schools. Prof. L. M. Terman, head of Psychology Department of Stanford University,

with the help of others selected from schools 1000 mental topnotchers. An ordinary man or boy would score 100 in the intelligence tests used. But no boy who scored less than 140 was selected. Some indeed scored as much as 190 or over. The professor says, 'on the average these child prodigies were stronger, bigger, tougher and healthier than ordinary children.' Lenin wrote 'Youth needs healthy sport, swimming, excursions, physical training of all kinds ;-a variety of mental interests, study, investigation, scientific research .... a sound body making a sound mind'. Thus a sound body and a sound mind are not incompatible but an ideal to work for.

What this health is which influences our mental welfare so much is what we should try to understand. In the first place let us see what disease is. Disease is weakness of our cells, by virtue of which they cannot discharge their duties satisfactorily, thus producing unpleasant symptoms differing from each other with the locality of the weakness. Thus we have so many diseases, while in reality weakness is the only disease that we suffer from. Constipation is the result of weakness of the excretory organs. So are other diseases.

Curious and startling as this statement might look, its truth can be well realised after some quiet, reflection upon the matter. We know that in epidemics it is not all who catch the disease. Why? If germs are the ultimate masters of destinies of our bodily health, surely all people living in a particular locality should fall victims to their onslaught. But that is not the case. It is only those who are not strong enough to resist the attack that go down. And even then if the bodily vitality is adequate, the disease is ultimately defeated.

Weakness is disease. But we cannot make the reverse statement that strength is health. Strength of some cells at the expense of others is not health. Health is a harmonious development and strength of all the cells of our body. Health cannot tolerate exploitation of certain cells at the expense of others. There is a perfect socialism of strength for all the cells of a healthy body. Neither is a man with strong arms but lacking virility healthy, nor is a consumptive with his insatiable sex appetite.

It is only this health and not any other that aids our mental powers and hence should be cultivated. Weakness glandular, respiratory or of any other function—exerts a harmful effect on our mental apparatus—the brain—and therefore on our minds.

That strength results from movements is the first law of creation. Activity is life. Stagnation means decay. It is well known how Dada Bhay Kundadev not only lost the use of his arm but all power of feeling in that arm as a result of his not using it for some time. We oft-times come across a sadhu with a shrunken arm raised over his head. That is the result of his not using it. Our own limbs we feel weaker if they have not been used for some time on account of some injury.

But games, sports or haphazard movements of the body cannot produce the health that we want. It is only balanced movements suiting the individual needs and strengthening the

whole body harmoniously i.e. scientific exercise that can produce health. Games, etc., disturb the little harmony that exists in our bodies rather than produce that harmony which gives us health. That is why we hear a cricketeer suffering from indigestion, constipation, catarrh etc., or even dropping dead from heart failure while taking off his leg-guards or running. This is not scientific physical culture. Though we should not discourage these games, at the same time we should realise that these cannot act as substitutes for scientific exercise. The right procedure is to prepare our bodies by regular, adapted exercise which the rigours of the game or sport we want to indulge in, entail. Scientific exercise is needed to strengthen the parts neglected in our selected sport or game so as to retain harmony. This is exactly what is being done in progressive centres. (Tate, Hendren, Bradman etc., all take regular scientific exercise besides their chosen sports. It requires exactly $845739.15 to run Harvard's sport system for a year, nearly 25% of which is spent on physical education).

Thus we see how our mental progress directly depends upon a harmonious development of our body. Hence all educational institutions should devote more money, energy and thought towards its accomplishment through the only method available viz. scientific physical culture.

INFANTS AND THEIR FEEDING

BY

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(Continued from page 195 Vol. XI No. 9; Sep 33 issue of the Health,)

INFANTS are fed on bottle when the milk in its mother is not sufficient; but both bottle and breast feeding is always desirable. Any feeding should be timely and never be irregular. Great care has to be taken during the first eight weeks of the infant, in increasing the constituents and times of feed. The milk should neither be too cold nor too hot but a temperature of 100°F. should be maintained. Several patent waters added to milk without any medical advice, would always prove injurious to the child. Lime, Gripe and Barley waters are the common ones. Barley water contains starch and the infant cannot digest its addition. Lime water when added makes the curd light and the milk can be easily digested but it has a constipating effect.

When feeding by bottle is resorted to, great care has to be taken in choosing the right kind of bottle. Bottles with long rubber tubes and which cannot be cleaned properly should be condemned. Bottles of the present day are simple in that they have only a teat with openings on both the sides and are best suited since they can be effectively cleaned and sterilised. Busy women leave bottles filled with milk by the side of infants for suckling whenever desired, and this is a very

bad practice since it promotes indigestion in them. The bottles should be thoroughly brushed and cleaned after each use. Milk should never be allowed to remain in bottles for subsequent feeds but always be freshly filled at every time of feeding.

The very fact that breast fed infants seldom suffer from serious diarrhoea compared with bottle fed infants, clearly go to show, that cows and other forms of milk have chances of easy contamination even though obtained with the best possible care and attention. Infected milk is believed to be the sole cause of tuberculosis. Milk should therefore be sterilized although there might be certain disadvantages which are not however serious. The taste of the milk and some of the valuable ferments in it are spoiled by boiling milk. However the valuable ferments and all the advantages of milk can be preserved by the process of "scalding" by which the milk is boiled to a high temperature and cooled rapidly.

Cow's milk with careful additions of water, sugar and by the process of mixing can be made into an ideal food more than all the patent ones. Patent foods generally contain starch and much of sugar. These can be used as adjuncts to foods for infants who so require. It is not uncommon to find bottle fed infants ailing from digestive troubles. Certain infants always vomit and this is due either to overfeeding or unnecessary tossling immediately after feed. In such cases care should be taken to feed the infant only at regular intervals, and the milk has also to be diluted. Addition of lime water to milk may be necessary. In such of the cases where caseinogen cannot be digested whey and butter-milk should be given. Mixtures of whey with milk and water or sugar water, would form a healthy feed for babies under the above conditions. Butter milk contains very little fat and it would be useful in cases where fat is not digested. In babies whose gastric secretion is deficient, and who suffer from diarrhoea, butter-milk on account of its high acidity and lactic acid bacteria content, would be of immense value. In cases of infantile diarrhoea buttermilk is given with advantage. It is always desirable in cases of serious diarrhoea in either breast or bottle fed infants, to stop feeding for twelve hours and albumin water given at frequent intervals, *i. e.*, two or three teaspoonfuls of albumin water every two hours may be given. Care has to be taken in renewing the feeds.

Great care and attention has to be paid in nurturing a baby. In India twenty out of every hundred children born die before they attain one year. Unless the infants are properly looked after, this high mortality cannot be prevented. 'The child is the father of the man' and unless the child of today is cared for, the nation of to-morrow cannot improve. It is the primary duty of every right thinking parent to see that children do not die in such large numbers when the cause is in themselves, to prevent it. 'Save the Babies'.

It will not be out of place if I were to quote the latest report on Infantile Mortality in the world, a comparative study, from the 'Hindu' of July 1st, which would be of interest. "Interesting comparisons between the

world's infantile mortality rates are given by the Registrar-General's quarterly return for England and Wales, wherein it is stated that in the first quarter of 1933, 71 children under one year, died in London, per a thousand live-births in comparison with Bombay's 331 per thousand, and Madras's 305 per thousand. The lowest mortality rate was Oslo with 23, while Sydney and Amsterdam were equal with 37, Paris 93, Berlin 82, Budapest 114 and Madrid 102, all per thousand.

It is rather significant that, during a recent speech, Professor A. M. Carr-Saunders of the Liverpool University predicted that the population of Britain would cease to increase by 1940. The Registrar-General's figures show that 148,675 births were registered during the quarter and 170,002 deaths; thus the population decreased by 21,327. There were 3,441 fewer births and 16,551 more deaths than in the corresponding quarter of 1932. No fewer than 11·57 per cent of the deaths were attributed to Influenza.

Marriages also show a striking decrease. There were 88,466 marriages in England and Wales, a decrease of 73,118 over the preceding quarter and a decrease of 35,670 over the corresponding in 1932."

HEADACHES

SIR WM. ARBUTHNOT LANE.

The subject of headaches is one which has received much attention from the medical profession but, unfortunately, there are certain of its problems which yet await solution. For example, the headache described as of nervous origin still presents considerable difficulty from the point of view of treatment and prevention, while the mechanisms of its causation are also obscure.

Sufferers from nervous headaches are, generally speaking, of the sensitive, highly strung and, not infrequently, studious type. A special feature of their nervous system is its extreme impressionability.

Such people are often highly intellectual with marked capabilities, but are continually striving after complete success in life. They have a morbid fear of failure and are continually whipping their minds to increased effort—even though fatigue should supervene. In brief, a nervous headache is often an evidence of a failure of adaptation to some of life's difficulties.

One of the most important forms of nervous headache is that which is termed "migraine." In this condition paroxysms of intense pain, usually on one side of the head but sometimes on both, recur at more or less regular intervals. A most characteristic feature of this headache is the peculiar disturbances of vision which herald the onset of the attack. Coloured lights, spots, or zig-zag figures float before the eyes, or there may be a mistiness of the sight. Migraine is one of the most disabling and exhausting of all headaches, and it severely handicaps victims socially and occupationally.

Attacks of migraine usually have fairly well defined precipitating causes. The immediate factor may be a bout of over-work, a worrying experience, or the anticipation of troubles or difficulties. In some cases a heavy meal, especially when tired, or the taking of tobacco or alcohol to excess, may provoke a paroxysm, while in other cases too violent exercise may have the same effect. Eye-strain is also a common exciting cause.

Naturally, the general bodily health must be investigated and any errors in hygiene corrected. Plenty of fresh air and sunshine are essential. Alcohol is best abstained from. In some cases the taking of glucose may prove beneficial. Drugs for the relief of the pain must only be taken under the supervision of the doctor.

In spite of all these measures, certain cases fail to benefit and the victims develop a pessimistic outlook on life—a state of mind which predisposes to further attacks. Such unfortunate people should remember that bright company and an atmosphere of optimism, promote a feeling of mental well-being, which helps to keep the enemy at bay.

The headache associated with eye-strain is usually caused by slight defects of vision. The reason is easily understood. There is little or no difficulty in seeing, for the muscles of accommodation in the eyes can correct the optical defect, but naturally, a strain is imposed, and the muscles become fatigued and painful, and headache results.

As the sufferer does not as a rule associate his headache with his eyes, he neglects to have his eye tested. The headache in eye-strain is generally dull, situated over or at the back of the eyes. Rest will relieve such a headache but to prevent recurrence correction of optical defect is essential.

Fatigue headaches are common nowadays, especially in those who work hard and then spend their leisure in exciting and strenuous recreations. Such headaches are a sign of incipient mental exhaustion and are a warning not to be ignored.—*The Graphic.*

THE BLOOD SUGAR.

SUGAR is the fuel of the body. The muscles get their energy from sugar just as the locomotive gets its power from coal or oil, or the automobile from gasoline. All the starch we eat, the dextrin and the various sorts of sugar—cane, malt and lactose or milk sugar—are by digestion converted into glucose or dextrose, the sugar found in the juices of fruits. This is the only kind of sugar the muscles can burn. If any of the different sugars get into the blood, the liver converts them and stores them up in its cells as glycogen or animal starch, which like the starch of plants is insoluble. The liver gets a little starch from fats, and nearly three-fifths of the protein eaten is converted into sugar. The liver converts the glycogen into sugar and doles it out to the body as needed, pouring it into the blood in a steady stream at the rate of twelve hundred to eighteen hundred calories, or twelve

to eighteen ounces of sugar, or about one calorie per minute. This is the rate at which the body uses sugar fuel when resting. When the muscles are active, as in running, the fuel consumption may proceed at a rate ten or twenty times greater.

As all the body cells derive their energy from sugar, it is necessary that the blood and all the body fluids should be constantly charged with sugar to insure a continuous and adequate supply. A chemical examination of the blood shows that in health it always contains from eighty to one hundred and twenty milligrams of sugar in one hundred cubic centimeters (three and one-third ounces) of blood. A milligram (mgm.) is almost exactly one-seventieth of a grain. Healthy blood thus contains approximately five to nine grains of sugar to the pint. Since the total volume of the blood is about ten pints, there is always afloat in the blood at the command of the body cells from about one dram to a dram and a half of sugar, or enough to keep the vital fires burning for fifteen or twenty minutes with the body resting, but only sufficient to last one or two minutes with the body active. It is evident that the sugar regulating function of the liver is one of the most important of the body's numerous vital activities. A fuel famine is always threatening. If the sugar content of the blood drops to one half the ordinary percentage, or two or three grains to the pint, evidences of grave vital disturbances appear immediately. Giddiness, faintness and a sense of complete exhaustion are a few indications of a lowered blood sugar content. If the condition is not immediately remedied, unconsciousness with coma and death quickly follow.

The urine, like other body fluids, always contains a little sugar, but much less than the blood. The amount of sugar normally found in the urine is so small, however, that it can be detected only by very delicate tests and is not shown by the tests ordinarily employed in urinalysis. The kidney holds back the sugar of the blood so long as it does not reach a level more than fifty to one hundred per cent above the normal. The blood sugar naturally rises a few fractions of a grain per pint after a hearty meal, but when the sugar content exceeds one hundred and sixty to one hundred and eighty milligrams, or two and one half grains to the pint of blood, sugar is likely to appear in the urine. That is, the amount of sugar in the urine increases to the extent that it becomes recognizable by the test ordinarily employed for this purpose. The increase in blood sugar which follows a meal should not continue for more than two hours. Long continuance of the after-eating increase is an indication that diabetes is impending if it has not already appeared. Examination of the urine is likely to show the presence of sugar, but even if no sugar is found, diabetes is probably present and sugar will likely appear in the urine later.

A careful study of the blood sugar is essential for a proper diagnosis in cases of diabetes. Some years ago the writer was consulted by a gentleman who brought his daughter for examination. The urine of the patient, a girl of ten, showed large quantities of sugar. The father stated that of his

several children all had suffered from diabetes and two had died. Examination of the man's urine showed it to be free from sugar, but examination of the blood showed a large increase of blood sugar.

A careful study of the blood sugar should be made in every case of diabetes. For many years the writer has made this blood test a routine in examination of patients. In a number of cases in which a high blood sugar has been found, the condition has been corrected by a change in diet, and it is believed that in this way the development of diabetes has in several instances been prevented.—*Good Health.*

VITAMINS IN TOMATOES

THE value of vitamins to the human dietary is universally agreed upon, if not generally understood. And it is common knowledge now that the source of these mysterious elements is none other than some of the commonest of our natural foods. Henry C. Sherman, Ph.D., Professor of Food Chemistry at Columbia University, says in his 'Food Products':—'Weight for Weight, tomatoes, raw or steamed, rank with lettuce or string beans as a source of vitamin A and B and with oranges and lemons as a source of vitamin C. The dry matter of tomatoes and of spinach contains an even higher concentration of vitamin A than does butter-fat.

A remedy for scurvy

'Lemon, orange and tomato juices are recognised as the best and most popular remedies for scurvy. Special emphasis may well be given to the anti-scurvy value of tomatoes and of tomato juice, because these contain their vitamin C.—content almost unchanged in cooking. They also contain vitamins A and B.

The value of tomato juice has been recognised for a considerable time by the medical profession as one of the most successful remedies for rickets and scurvy, but it is only recently that it has become generally accepted as the chief remedy for malnutrition for children and invalids. The patients of Children's Memorial Hospitals in Chicago are fed tomato juice. The doctor in charge of the Hospital reports: 'The vitamin content of tomatoes is accomplishing the "undreamed of" in the feeding of infants and children, and is doing marvellous things in cleansing the system.'

Several cases of ophthalmia, an eye disorder caused by a diet deficient in vitamin A, have been treated by giving tomato juice.

Protection against disease

It has been stated by a noted authority on diet that tomatoes and tomato juice afford the great protection against disease of any single item of diet in the world. Yet it is surprising how slow the public is to accept anything so simple and so inexpensive as tomatoes. The juice also should be given to patients suffering from fever, as the natural acids counteract the feverish condition of the system and afford greater relief than almost any other beverage.

Tomato juice is recognized as being one of the most thirst-quenching beve-

rages, having three important acids; malic, the acid found in apples; citric, the acid found in lemon, limes and oranges, and phosphoric. In addition, tomato juice is particularly effective as an appetizer to be taken at a meal. It stimulates the flow of saliva and gives an added jest to the food. Dr. P. J. Cammidge of London reports:—"Tomatoes rank first among all vegetables and fruits as a food treatment for diabetes." Tomato juice is now being prescribed extensively also in cases of obesity and anaemia. Tomatoes are put by competent authorities at the head of all foods for reducing weight.

Tomato juice for drug addiction

Perhaps the reader is not familiar with the fact that nothing is more effective in cleaning the system of the toxin resulting from an over-indulgence of alcoholic stimulant than cold tomatoes or tomato juice. Alcoholic patients and drugs addicts are now administered liberal quantities of tomato juice. The toxin resulting from too much rich food and too little exercise are likewise overcome by the use of tomato juice. In addition to the vitamin content and the tendency to clean out the system, tomatoes are rich in mineral matter. Tomatoes contain proteins, phosphates, potash lime, magnesium, sodium, sulphur, chlorine and iron.

A better source of iron than meat

The iron in fruits and vegetables is better absorbed and becomes more completely available for nutrition than the iron of the meats.

Dr. G. W. Wagner of Chicago states that:—

1. Tomatoes are the richest of all foods in vitamins.
2. They are the richest of all vegetables in natural health acids, which keep the stomach and intestines in condition.
3. They are effective blood-cleaners.
4. Tomatoes are corrective for the kidneys helping to wash away any poison that causes disease.
5. They are prescribed for daibetes and Bright's disease.

The widespread use of tomato juice has brought an appreciation of the virtues of tomatoes to many people who had never before particularly cared for tomatoes as a food.

A survey of the field brings to attention instances of help in case of dyspepsia, rheumatism, eye trouble, obesity, anaemia, constipation, foul breath, blood disorder, skin disease and ever so many other disorders, until the list looks like a patent medicine testimonial. —*Scientific Indian.*

HEALTH-TIT-BITS.

Curd.—The food value of curd is exactly the same as that of milk since there is no addition of any food article or subtraction of any food constituent in turning milk to curd. It is however, a proven fact that curd often agrees with people who cannot digest milk. This is due to the fact that the curd is extremely rich in lactic acid bacilli which aid digestion to an appreciable extent. Curd is not constipating but it very materially differs in its effects from hot milk which is decidedly laxative in its effects. Curd

disagrees with some persons, especially those who are of a phlegmatic temperament. If it is taken at night by such persons, it is apt to cause flatulence and distension of the stomach. This has given rise to a general belief that it is unhealthy to take curd at night. But the true fact is that, persons of highly phlegmatic temperament excepting, curd may be taken in suitable combinations at any time of the day with advantage.—*Natural Health.*

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Vitamin Content of Cocoanut Water.—Cocoanut water is being extensively taken by people in hot climates during summer; it is done so in India. Dr. Axtmayer after an elaborate study of cocoanut water says :—Its use as a diuretic, the doctor observes, is not based on any scientific evidence. Its content in vitamins B_1 and B_2 was determined by an elaborate biological technique. Hence cocoanut water taken from the ripe fruit is thus a poor source of vitamin B_1 but a relatively good source of vitamin B_2. In this country the water of unripe, young nuts is preferred, which is likely to contain larger amount of vitamin B_1.—*Drug and Health.*

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Moonshine. —The moon itself does not emit any rays like the sun. Moonshine is the reflection of the sun's rays' striking the surface of the moon. All the heat rays and practically most of the chemical rays of the sun are absorbed by the moon. Only a few of the visible rays of the sun's spectrum are reflected back by the moon and as such the moon's rays have no demonstrable physiological action on the body.—*Health & Happiness.*

Bactericidal Power of Human Milk.—The milk of nursing mothers has the power of killing disease germs and so is of protective antiseptic value to their offspring. Doctor Schlæppi has experimented with milk from nursing mothers and found that it has to a high degree this bactericidal power which it retains for sixty hours or more if kept at mean temperature. Boiling the milk destroys its germicidal properties.—*Health and Wealth.*

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Iron in Milk.—Curiously, while milk contains an ample supply of all the other elements needed for complete nutrition, including food lime, phosphorus, etc., it is lacking in iron. There is a physiological reason for this. Before a young mammal is born, Nature stores up in its liver a rich supply of iron, sufficient to last the animal until it is weaned and able to eat grass or other foods rich in iron. Human milk contains more iron than cow's milk for the reason that the human infant is not weaned until it is nine or ten months old; while the calf begins to eat grass and food rich in iron when it is three or four weeks old.

A study (Wallgren) of the iron content of human milk, goat's milk and cow's milk, shows that cow's milk contains the least of the three milks, and also observed that giving iron to the mother, does not increase the iron content of human milk.—*Good Health.* (*U. S. A.*)

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The cause of Piles.—When there has been disorder in the lower part of the food tube for any length of time

changes take place in the tissues, the commonest trouble resulting being that of piles. That complaint is usually due to the retention of the waste matter. If that matter is held in the folds of the rectum, it may set up a low grade of inflammation and in time cause the parts to become congested. Then, concomitant with the retention of the stools, the individual is obliged to strain when passing the fæces, and that leads to great distension of the veins and possibly bursting of those vessels. The condition may be regarded as a varicose state of the rectum, and, obviously, when the surface has been broken, a part is left that is susceptible to re-infection from the passing of the fæces. If the trouble is not properly remedied, there is a possibility of an anal fissure or ulcer forming, which will interfere with the function of evacuation and give great pain and discomfort when the stools are passed.—*Health for All.*

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Health Value of Fruit Juices:—If only we realised it, there is more virtue in the juice of a lemon or an orange than there is in a dozen bottles of the finest medicine that was ever concocted. The lemon is literally the "Queen of Fruits." It contains what may be described as stored-up sunshine, which is lacking in much of the food we eat. The value of lemon juice, both in health and disease-condition, is not recognised at its true worth. It is alkaline in reaction, and does not cause acidity, as is sometimes thought. The supposed bad effect of lemon juice in rheumatism and gouty conditions is due, not to the juice itself, but to the refined sugar which is sometimes added. The germs of influenza and colds can be kept at bay if lemon juice is taken daily. It helps to increase the body's power of resistance. If a cold threatens, drink hot lemon juice freely. Here is another useful tip: A dry, hacking cough can quickly be relieved if the juice of a lemon is placed in a tumbler of hot water, flavoured with honey and sipped slowly. There are a hundred and one conditions where the answer is—a lemon. The orange is another excellent food and medicine. It is a good dissolver, purifier, and eliminator. It is a cooling, healing, life-giving food for all. It gives us quick mentality, vitality, and tone to the organs of the body. One can live for a considerable time on oranges alone. It is better to serve orange juice to the sick when food is indicated, because it digests with one-sixth of the energy required for most solids.—*Health for All.*

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Phono-Therapy—Treatment by Sound.—Combining science and art, a well-known musician claims to have discovered a method for the curative administration of sounds. Mrs. J. H. Foulds is opening a clinic in London for phono-therapy: a "bath" of sound, which she claims to be analogous to sun bathing or treatment by ultra-violet rays. Apart from its soothing or stimulating influence, we are told, there is in sound "a traceable magnetic influence which can be induced by certain practices."

"I am not alone in my studies of the power of sound," says Mrs. Foulds. "Patients are treated by sound, color and scents in the State asylum in

Chicago. You can revise or lower the bodily temperature by sound. According to the findings of two Frankfort doctors, sounds have a strong and beneficial action in cases of muscular debility, paralysis, rheumatism and insomnia. They experimented with certain combined sounds put on gramophone records, for ten years. They could not limit the field for cure."

No miracles are claimed for this new method of treatment, but it is believed that under proper medical supervision it has achieved results "which warrant the hope that phonotherapy may prove to be another wonder of science and of art." — W.—*Good Health.* (*U. S. A.*)

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Chinese Longevity.—According to a recent report from the province of Czechwan, China, the Chinese have unbounded faith in human potential longevity. One Li Ching-yun, who recently died, claimed the world's record for length of days. He was born, according to his story, in 1736. This made his age at death approximately one hundred and ninety-seven years. Although there may be no certain proof of this man's supercentenarianism, it is interesting to note that the Chinese find no difficulty in accepting the man's claim to having seen one hundred and ninety-seven birthdays.

Modern research has thoroughly discounted the notion that there is a natural limit to the number of years a man may live and beyond which human existence cannot be extended. Old age is a disease. The human machine is so perfectly and substantially constructed that it should stand the wear and tear of careful and proper use for at least a century and a half, or even two centuries. That the average length of life is less than one-third as great, or only about sixty years, is due to the fact that the body is misused and abused to such an extent that, considering the handicaps and injuries which civilization has heaped upon the human race, its survival, even for an abbreviated period, is a source of wonderment.—*Good Health.* (*U. S. A.*)

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The Coffee Deluge.—For years the coffee growers have maintained in this country a so-called "Coffee Committee," which they have subsidized with millions of dollars to be used in efforts to increase the consumption of coffee by the people of the United States.

That the Committee's efforts have been successful is shown by the steady increase in the consumption of coffee in this country. The annual coffee crop is about twenty-five million bags, of which the United States consumes one half, which represents one and one-third cups daily for every man, woman and child in the United States.

The active principle of coffee is caffein, a drug which raises blood pressure. It is one of the most reliable of all agents for this purpose and is much used by surgeons to raise the blood pressure of patients whose blood pressure has fallen below normal as the result of shock following an operation. The dose given for this purpose is one or two grains. A cup of coffee contains four grains (H. W. Wiley), two or three medicinal doses.

Of the three hundred thousand people who die in this country from heart disease annually, at least ninety-nine per cent are coffee drinkers.—*Good Health.* (*U. S. A.*)